نام و نام خانوادگی ......تارا رضایی...... پاسخنامه تشریحی تکلیف شماره ...۴... کلاس ......دوازدهم تجربی......

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الف) $2\left(\frac{x}{2}-\left[\frac{x}{2}\right]\right)^2 \Rightarrow R_f=[0,2)$

$R_f=[0,2)$

ب) $\log y = \sin x+4 \Rightarrow -1\le \sin x\le 1 \Rightarrow 3\le \underbrace{\sin x+4}_{\log y}\le 5 \Rightarrow 10^3\le y\le 10^5$

$R_f=[10^3,10^5]$

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$f(x)=\sqrt{\frac{x^2-4}{x^2-9}}$ $\quad y^2=\frac{x^2-4}{x^2-9} \Rightarrow y^2x^2-9y^2=x^2-4 \Rightarrow (y^2-1)x^2-9y^2+4$

$x^2=\frac{9y^2-4}{y^2-1} \Rightarrow x=\pm\sqrt{\frac{9y^2-4}{y^2-1}} \Rightarrow \frac{9y^2-4}{y^2-1}\ge 0$

	-1		$-\frac{2}{3}$		$\frac{2}{3}$		1	
$+$		$-$		$+$		$-$		$+$

$[-\frac{2}{3},\frac{2}{3}]\cup(1,+\infty)$

$a+b+c=-\frac{2}{3}+\frac{2}{3}+1=1$

۳

الف) $\left(\sqrt{x+\frac{1}{x}}+1\right)^2-1 \Rightarrow R_f=[0,+\infty)$

$[1,+\infty)$

ب) $-\sin^2x+2\sin x+3$

$+1 \Rightarrow 4$

$\sin \; -1 \Rightarrow 0$

$\frac{-b}{2a}=1 \Rightarrow 4$

$R=[0,4]$

۴

$x=1 \Rightarrow \frac{1}{3}+\frac{30}{3}=\frac{31}{3}$

$x=2 \Rightarrow \frac{2}{3}+\frac{30}{3} \Rightarrow \frac{32}{3}$

$x=3 \Rightarrow \frac{33}{3}$

$x=4 \Rightarrow \frac{34}{3}$

$x=5 \Rightarrow \frac{35}{3}$

$x=6 \Rightarrow \frac{36}{3}$

$x=7 \Rightarrow \frac{37}{3}$

$x=8 \Rightarrow \frac{38}{3}$

$x=9 \Rightarrow \frac{39}{3}$

$\Rightarrow S=\frac{315}{3}=105$

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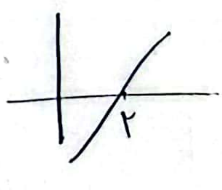
$f(x)=\sqrt{ax^2+bx+c}$ $\quad a=0$

$2b+c=0$

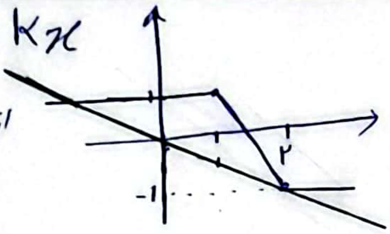
$3b+c=1$ $\Rightarrow b=1 \quad c=-2$



$g(x)=\sqrt{x^2+4}=\sqrt{[4,+\infty)} \Rightarrow R_g=[2,+\infty)$

۶

$|x-2|-|x-1|=kx$



kx ← از نقطه‌ی $(0,0)$ و $(2,-1)$ عبور می‌کند

$k=\frac{0+1}{0-2}=\frac{-1}{2}$

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الف)

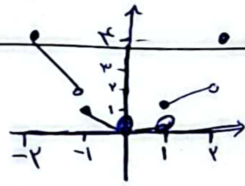
$-2\leq x<-1 \Rightarrow -2x$

$-1\leq x<0 \Rightarrow -x$

$0\leq x<1 \Rightarrow 0$

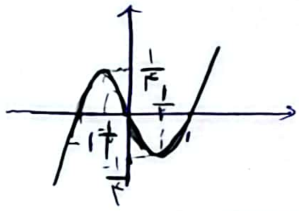
$1\leq x<2 \Rightarrow x$

$x=2 \Rightarrow 2x$



ب)

$\begin{cases} x^2-x & x\geq 0 \\ -x^2-x & x<0 \end{cases}$



۸

$y=\frac{2x+2}{x^2+x} \Rightarrow yx^2+yx=2x+2 \Rightarrow yx^2+(y-2)x-2$

$\Delta=y^2-4y+4+8y=y^2+4y+4$

$x=\frac{-(y-2)\pm\sqrt{y^2+4y+4}}{2y}$

$y^2+4y+4\geq 0$ همواره برقرار

$y\neq 0$ $\quad 0=a \quad b=-2$

$y=\frac{2(x+1)}{x(x+1)} \Rightarrow \frac{2}{x}$ $\quad x\neq -1 \Rightarrow y\neq -2$

$a+b=-2$

۹

$\frac{(\sqrt{x}-1)(\sqrt{x}-3)}{(\sqrt{x}-1)(\sqrt{x}-1)}$

$x\neq 1$ $\quad R_f=R$

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$f=\frac{(x-1)(x^2+3x+2)}{(x-1)(x+1)}=\frac{(x-1)(x+1)(x+2)}{(x-1)(x+1)}=x+2$

$x\neq 1 \Rightarrow y\neq 3$

$x\neq -1 \Rightarrow y\neq 1$

$R-\{3,1\}=R_f$

$3+1=4$